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UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service
Cotton Division

FIBER AND SPINNING TEST RESULTS FOR SOME VARIETIES OF COTTON GROWN BY SELECTED COTTON IMPROVEMENT GROUPS, CROP OF 1955 1/

Fiber and spinning tests have been made on the principal varieties of cotton grown commercially by selected cotton improvement groups beginning with the 1946 crop. These results have been reported for each crop as promptly as possible upon the completion of the tests. This initial report on the 1955 crop includes results obtained from early harvested cottons grown in the Lower Rio Grande Valley of Texas. Supplemental reports will be issued as the harvesting season progresses in these and other areas and will, insofar as practicable, include results for early, midseason, and late harvested cotton.

During the current season, test results will be published for approximately 115 market areas, each of which will produce 10,000 bales or more of a specified variety of cotton. The criteria for selecting areas and samples and for evaluating the fiber and spinning test data are essentially the same as those for former years, and, together with the manufacturing organization and some of the more important settings used for processing, have been described in previous publications. 2/ The spinning lots represent commercially grown cotton of even-running grade and staple from many bales of each specified variety. Qualities other than those reported on are, of course, available in each area as a result of normal seasonal and soil variations.

Results of the fiber and spinning tests here reported (table 1) were obtained in the same manner as those reported for the 1954 crop, except as follows:

1. Fiber strength test results according to the Pressley method will be reported for tests made at 1/8-inch gauge spacing as well as for results obtained from tests made at zero gauge.

2. The recently developed raw stock nep test has been omitted for the 1955 crop.

3. The yarn uniformity test has been discontinued for the 1955 crop.

Statistical analyses of the results of empirical tests have shown that strength values obtained at the 1/8-inch gauge spacing are more significant from the standpoint of relationship with yarn strength than those

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1/ Prepared in the Standards and Testing Branch.

2/ Summary of Fiber and Spinning Test Results for Some Varieties of Cotton Grown by Selected Cotton Improvement Groups, Crop of 1954. USDA, AMS, February 1955.

Table 1.--Results of classification, fiber tests, and carded yarn processing tests for specified varieties of cotton grown in designated market areas, processed at a card production rate of 9-1/2 pounds per hour, crop of 1955

Test item	Results for specified variety, state, market area, and period of harvest		
	Deltapine 15		Deltapine (TPSA)
	Texas		
	Brownsville	Lyford	Edcouch
	Early	Early	Early
Raw Cotton Quality			
Grade (official standards)	M	M	M
Staple length--------------inches	1-1/32	1-1/32	1-1/32
Fiber length (Fibrograph):			
Upper half mean----------inches	1.04	1.02	1.00
Uniformity ratio--------percent	81	82	81
Fiber Causticiare test:			
Fineness---------------ug./in.	4.7	4.7	4.7
Maturity-----------------index	79	78	79
Fiber tensile strength: 1/			
Index----------(1/8" gauge) 2/	98	101	95
1,000 p.s.i.---------(0 gauge)	76	79	78
Nonlint content----------percent	2.35	3.17	2.75
Color of cleaned lint (Rd/b) 3/	79.1/8.1	78.5/9.1	78.0/8.7
Sugar content------------percent	0.2	0.2	0.1
Processing Results			
Picker and card waste----percent	8.64	8.84	8.82
Neps per 100 sq. in. of card web	7	4	9
Yarn skein strength:			
22s--------------------pounds	111	112	111
50s--------------------pounds	39	39	39
Average break factor	2203	2208	2204
Yarn appearance:			
22s----------------------grade	B	B	B
50s----------------------grade	C+	B	C+
Average index	105	110	105

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Table 1.--Results of classification, fiber tests, and carded yarn processing tests for specified varieties of cotton grown in designated market areas, processed at a card production rate of 9-1/2 pounds per hour, crop of 1955--Continued

Test item	Results for specified variety, state, market area, and period of harvest		
	Deltapine (TPSA)	Delfos	Lankart 57
	Texas		
	Weslaco	Corpus Christi	Taft
	Early	Early	Early
Raw Cotton Quality			
Grade (official standards)	M	SM	M
Staple length------------inches	1-1/32	1-1/32	1
Fiber length (Fibrograph):			
Upper half mean---------inches	1.03	1.06	.98
Uniformity ratio-------percent	80	81	82
Fiber Causticaire test:			
Fineness---------------ug./in.	4.5	4.2	4.5
Maturity----------------index	75	75	76
Fiber tensile strength: 1/			
Index----------(1/8" gauge) 2/	107	94	92
1,000 p.s.i.---------(0 gauge)	80	80	74
Nonlint content----------percent	2.27	2.59	3.41
Color of cleaned lint (R_d/b) 3/	79.0/8.8	78.8/8.6	78.0/9.2
Sugar content-----------percent	0.1	0.2	0.2
Processing Results			
Picker and card waste----percent	8.97	8.62	8.34
Neps per 100 sq. in. of card web	5	7	7
Yarn skein strength:			
22s--------------------pounds	111	105	102
50s--------------------pounds	38	35	34
Average break factor	2178	2028	1985
Yarn appearance:			
22s---------------------grade	B	B	B
50s---------------------grade	C+	C+	C+
Average index	105	105	105

1/ Determined by Pressley instrument.

2/ Index of 100 equals average strength of 1954 commercial crop of Upland cotton.

3/ Determined by Nickerson-Hunter Colorimeter on lint cleaned by Shirley analyzer.

obtained at zero gauge. Because of the more significant results from the 1/8-inch gauge test, this test has been adopted as the standard method by the Cotton Division of AMS. However, because of the continued widespread use of fiber strength results based on tests made at zero gauge, results for zero gauge tests are included in this report, in addition to the results obtained from tests at 1/8-inch gauge. The zero gauge results will continue to be reported in the generally accepted terms of thousands pounds per square inch. The results for 1/8-inch gauge tests, however, will be reported in relative terms as an index. Index values greater than 100 indicate higher than average fiber strength, whereas, index values smaller than 100 indicate lower than average fiber strength.

The results from the recently developed raw stock nep tests, which were reported in the initial report and all supplements for the 1954 crop, will not be reported for the 1955 crop. This is because card web nep test results are available in connection with the spinning tests, and the extra testing for raw stock nep content does not appear justified.

A comprehensive study of yarn uniformity test results has indicated that the effect of fiber properties on yarn uniformity is too small to serve as a reliable measure of the processing quality of the cotton. Yarn uniformity values, however, are very sensitive to processing variables and can be used advantageously as a control device in reducing such variables in connection with spinning tests.

Processing results for the 1955 crop cottons will be based, as in previous years, on four rates of carding. The cottons included in this report were processed in accordance with the organization for Group 2 (card-production rate of 9-1/2 pounds per hour). No data are available at this time for Groups 1, 3, and 4 (card production rates of 12-1/2 pounds, 6-1/2 pounds, and 3-1/2 pounds per hour, respectively), but test results for such cottons will be contained in supplements to this report to be issued as the season progresses.